PREFILED TESTIMONY OF
DAN WESTON
DIRECTOR OF ENGINEERING & OPERATIONS

Mr. Weston provides testimony describing the reconstruction of the East Montpelier Substation. He explains how the new substation is consistent with 30 V.S.A. § 248 b(6) relating to WEC's least-cost integrated plan, b(7) Vermont's 2005 Electric Plan, b(4) is economically beneficial to the State of Vermont and its residents, and b(10) can be economically served by existing transmission facilities.

In addition, his testimony addresses how the proposed Project meets the environmental criteria set forth in 30 V.S.A. §248 (b)(1) relating to orderly development of the region, (b)(2) need for present and future demand which could not otherwise be provided in a more cost effective manner (b)(5) aesthetics, historic sites, air and water purity, the natural environment, and public health and safety, 10 V.S.A. §1424a(d) outstanding resource waters, §6086(a)(1) water and air pollution, §6086(a)(1)(A) headwaters, §6086(a)(1)(B) waste disposal, §6086(a)(1)(C) water conservation, §6086(a)(1)(D) floodways, §6086(a)(1)(E) streams, §6086(a)(1)(F) shorelines, §6086(a)(1)(G) wetlands, §6086(a)(2)(3) sufficiency of water, §6086(a)(4) soil erosion, §6086(a)(5) transportation systems, §6086(a)(6) educational services, §6086(a)(7) municipal services, §6086(a)(8) aesthetics, historic sites or rare and irreplaceable natural areas, §6086(a)(8)(A) necessary wildlife habitat and endangered species, §6086(a)(9)(K) public investments, and 30 V.S.A. §248(b)(8) outstanding water resources.

Q1. Please state your name and address.

A1. Dan Weston, Calais, Vermont.

Q2. What position do you hold at Washington Electric Cooperative, Inc. (hereafter "WEC")?

A2. Since 1997 I have served as Director of Engineering & Operations for Washington Electric Cooperative, Inc., and as such, I have overall responsibility for operations and maintenance of the Cooperative's transmission and distribution system under the direction of the General Manager. I have testified before the Public Service Board on previous substation reconstruction projects, notably, the Moretown, South Walden and Maple Corner Substations in Docket Nos. 6347,6637 and 7158, respectively. I have also testified before the Public Service Board on the Coventry Landfill-Gas-to-Energy Project, and the two project expansions. I provided oversight for the construction, including the implementation of environmental remediation measures, for these projects.

Q3. What is the purpose of your testimony?

A3. The purpose of my testimony is to describe the proposed reconstruction of the East Montpelier Substation, explain how the new substation is consistent with 30 V.S.A. § 248 b(6) relating to WEC's least-cost integrated plan, b(7) Vermont's 2005 Electric Plan, b(4) is economically beneficial to the State of Vermont and its residents, and b(10) can be economically served by existing transmission facilities.

In addition, my testimony addresses how the proposed Project meets the environmental criteria set forth in 30 V.S.A. §248 (b)(1) relating to orderly development of the region, (b)(2) need for present and future demand which could not otherwise be provided in a more cost effective manner (b)(5) aesthetics, historic sites, air and water purity, the natural environment, and public health and safety, 10 V.S.A. §1424a(d) outstanding resource waters, §6086(a)(1) water and air pollution, §6086(a)(1)(A) headwaters, §6086(a)(1)(B) waste disposal, §6086(a)(1)(C) water conservation, §6086(a)(1)(D) floodways, §6086(a)(1)(E) streams, §6086(a)(1)(F) shorelines, §6086(a)(1)(G) wetlands, §6086(a)(2)(3) sufficiency of water, §6086(a)(4) soil erosion, §6086(a)(5) transportation systems, §6086(a)(6) educational services, §6086(a)(7) municipal services, §6086(a)(8) aesthetics, historic sites or rare and irreplaceable natural areas, §6086(a)(8)(A) necessary wildlife habitat and endangered species, §6086(a)(9)(K) public investments, and 30 V.S.A. §248(b)(8) outstanding water resources.

Q4. Please describe the proposed reconstruction of the East Montpelier Substation.

A4. This project will replace the outdated and aged East Montpelier Substation that was built in 1968 and is located at 130 Quaker Hill Road in East Montpelier, Vermont, with a modern, efficient, and similarly sized facility. From this substation, WEC provides electrical service to approximately 1,640 members in parts of the towns of East Montpelier, Calais, East Calais, Adamant, Marshfield, Plainfield, Barre, Orange and

Cabot. These are predominantly residential members along with some small commercial loads, including farms.

The current substation's support structure was built in 1968 with wooden poles and crossarms. A general inspection of the substation reveals advanced rot and deterioration of the wooden structure, and a lack of safe working clearances between energized high voltage disconnects, switches and equipment. The substation has three energized 1667 kVa transformers that provide transformation of the 34.5 kV subtransmission line voltage to a distribution voltage of 12.5 kV and one spare transformer. Three of transformers have reached the end of their useful lives, and the fourth transformer, which was installed in 2000, will be used as a spare in the reconstructed substation. WEC considered other alternatives such as replacing and rearranging equipment to gain adequate clearances. However, the decay and deterioration of the wooden structure is beyond reasonable economic repair. Accordingly, WEC is faced with no other option than having to replace this substation. No reasonable alternative exists for its replacement.

The proposed substation will be reconstructed in the footprint of the current substation site, including its parking lot that surrounds the existing substation structure. WEC proposes to extend the southeast side of the existing substation fence an additional 30 feet into the parking lot. The dimensions of the existing four-sided, fenced-in area are 49'6"' x 49'10". The new substation site will form a polygonal-shaped fenced-in area

that is 80' at its widest in an east-to-west direction, and 100' at its widest in a north-to-south direction. The enlarged fenced-in area will allow for proper working clearances around energized equipment, as well as the ability to accommodate a portable substation in the event of a substation transformer failure within a secured area. A fair and accurate copy of the full design and site specifications are attached as **WEC Exhibits 1(C1)-(C4); WEC Exhibits 1(E0)-(E10); WEC Exhibits (S1)-(S4).** The site plans are specifically depicted in **WEC Exhibits 1(C1) and (C2).**

The existing fenced-in area is built upon approximately 36 inches of crushed gravel and 6 inches of crushed stone. The parking area adjacent the existing fenced-in area, which will become part of the new fenced-in area, currently has in excess of 24 inches of crushed gravel. The proposed project involves minimal earth disturbance entailing the removal of the existing 6 inches of crushed stone in the fenced-in area, and replacing it with an additional 6 inches of crushed gravel, topped by 3 to 4 inches of crushed stone. In addition, new concrete footings for the steel structure and equipment will also require earth disturbance within the preexisting substation foot print. The expanded fenced-in area will have 6 to 12 inches of crushed gravel added to the existing surface, topped by 3 to 4 inches of crushed stone. The elevation of the southwest corner of the proposed fenced in area on which the concrete block control building will be situated will need to be raised to the same level as the existing lot. WEC anticipates have to raise the elevation in this corner by approximately 4.5 feet with crushed gravel and

stone, but still all within the pre-existing parking lot that already a gravel drive. ***See*** **WEC Exhibits 1 (C2) & 1(C5).**

The proposed substation will replace the existing wooden substation structure and equipment with a galvanized steel structure. The high-side portion of the structure, located at the northern end of the site, will be approximately 28'8" from ground level to the top of the airbrake switch. The low-side support structure will be 20'0" above finished grade. The proposed high side of the substation will be approximately 4'2" lower in overall height than the existing wood structure, while the low side support structure will remain approximately the same height. **WEC Exhibits 1(E3) & 1(E4),** substation elevation design plan. The overall profile of the substation generally will remain the same. ***See*** **WEC Exhibits 6(a)-(c),)(DW-6(a)-(c))**, , photos of existing East Montpelier substation and Maple Corner substation, which utilizes the same generic substation design proposed for this project. **WEC Exhibit 5 (DW-5)** is a copy of an USGS aerial photograph that accurately shows the location of the substation site. **WEC Exhibit 9** (DW-9) is a copy of a topographic map obtained from *topozone.com* that accurately depicts the location and surrounding area of the substation site. The site will also contain a 12' x 8' concrete block control building located at the southwest corner of the site. **WEC Exhibits 1(C2) & (E6)**, site and control building structure plans. In addition, the existing three overhead 15 kV distribution feeders currently exiting the substation from the north, east and south and will be placed under ground to the first pre-existing pole on the feeder.

Construction of the East Montpelier Substation will include replacement of the existing high loss 1667 kVa transformers with energy efficient, environmentally friendly 1667 kVa transformers manufactured by Cooper Power Systems. The power transformers will utilize Cooper Power Systems' Envirotemp® FR3 dielectric fluid which is derived from 100% edible seed oils and other food grade additives, thereby minimizing any negative environmental impacts. In addition, the design will incorporate an oil spill containment system as required by the United States Rural Utilities Service ("RUS"). WEC Exhibits 1(C2) & 1(C3). The oil containment for the new substation is designed to collect and store the total volume of the oil contained in the largest piece of equipment in the event of any leakage incident.

As already noted, the proposed construction will remain within the current footprint of the substation and parking area. An erosion control and sediment plan consists of strategically placing silt fencing around the site during construction of the new substation. Reseeding and mulching will also be utilized to prevent the migration of construction soils and sediment beyond the construction zone. ***See* WEC Exhibits 1(C2)-1(C4).**

A separate aspect of the proposed reconstruction project involves the relocation of WEC's 34.5 kV transmission line from over the top of the East Montpelier Substation structure to an adjacent location approximately 37 feet east of the existing substation

fence with four transmission poles. **See WEC Exhibits 1(C1), 1(C2) & 1(C5), site and power line profile plans; WEC Exhibit 6(d) (DW-6(d)), photos of site where poles will be installed.** WEC Exhibit 6(d) contains four photographs. The four photos in this exhibit depict pink flags where the poles will be sited. The photos in WEC Exhibit 6(d) labeled P2, P3, and P4 respectively show where the respective P2, P3, and P4 poles referenced in site plan WEC Exhibit 1(C2) will be located. The fourth photograph represents the location of the fourth transmission pole that will be located near the existing GMP metering pole depicted in the site plan of WEC Exhibit 1(C1), located south of the existing substation site.

This line relocation will require the installation of four, new 40'wooden class 1 poles to the east of the existing substation fence with three separate conductors mounted on crossarms near the top of the poles. The photograph in Exhibit WEC6(d)depicts the location of pole P3 and contains a distribution pole of similar size and height. The new line will be located partly within the existing 34.5 kV transmission corridor and partly onto adjacent WEC property. No trees will be cut in conjunction with this line relocation.

The major equipment for the site are the transformers and regulators, which will transported from WEC's operations building on a flat bed trailer. The rest of the infrastructure will be delivered by a one ton truck. The old structure will be dismantled and recycled consistent with WEC's policies and practices.

Q5. Is the project consistent with WEC's Integrated Resource Plan?

A5. WEC's Integrated Resource Plan ("IRP") dated October, 2003, as supplemented by its Long Range Plan ("LRP") dated March 2004 , and approved by the Vermont Public Service Board on June 15, 2005 (PSB Docket 6896), addresses WEC's electrical distribution and transmission facilities. The LRP provides a guide for developing WEC's transmission and distribution system and incorporates critical elements that need to be addressed to provide safe, reliable and efficient electric service at a reasonable cost. The LRP recommends that WEC continue to reconstruct and upgrade its substation facilities based on **condition**, **age** of equipment and **transformer** loading capacity. **WEC Exhibit 2a (DW-2a)**, Excerpt from LRP at 7. The LRP further recommends that WEC include the replacement of at least one substation rebuilt in each successive construction work plan. *Id.* The LRP contemplated the replacement of the East Montpelier Substation sometime during 2009-2012. *Id.*, at p. 58. The planned replacement of the East Montpelier Substation is included in the Cooperative's 2008 – 2011 Construction Work Plan, and it will be funded in part by reimbursement from the American Recovery and Reinvestment Act stimulus grant. ***See* WEC Exhibit 2b (DW-2b),** excerpt from WEC's Construction Work Plan. In summary, the replacement of the East Montpelier Substation is consistent with WEC's IRP as supplemented by its LRP.[1]

[1] . It is noted that WEC has filed a new Integrated Resource Plan ("IRP") on or about February, 2008, which is still being considered by the Vermont Public Service Board. This IRP also references the Long Range Plan as a guide for developing WEC's transmission and distribution system. *See* 2007 IRP, Appendix B, at page 3.

Q6. Is the project in compliance with the Vermont 2005 Electric Plan approved by the Department of Public Service under Section 202 of Title 30?

A6. Vermont's Electric Plan dated January 19, 2005, directed each utility to evaluate options for improving transmission and distribution efficiency through enhanced system configurations and the installation of energy efficient T&D components. **WEC Exhibit 2c (DW-2c),** Vermont Electric Plan at A-8.

WEC conducted a system evaluation in conjunction with its LRP. The evaluation looked at data over five years including historic load growth, substation capability, system line losses and reduction techniques, service reliability, vegetation management, and overall system performance. One of the conclusions was that the East Montpelier substation should be replaced as part of the process of upgrading all of the wood pole substation structures on the system. **WEC Exhibit 2a (DW-2a)**, LRP at p. 58. The system evaluation also recommended voltage regulation setting changes to new substation projects in order to enhance system performance and reduce line losses. WEC Exhibit 2(c)(DW-2(c)).

Recognized techniques for enhanced transmission efficiency through system configurations and the installation of energy efficient T&D components will be incorporated into the design of this project as well. New circuit reclosers, airbrake switches and CT metering will be installed on the four new transmission poles that will be installed as part of the transmission line relocation.

Reconstruction of the East Montpelier Substation will include load balancing and replacement of high loss equipment. Existing high loss transformers will be replaced with energy efficient, environmentally friendly 1667 kVa transformers manufactured by Cooper Power Systems. These transformers were selected based on their no-load loss, load loss, and cost multipliers, as well as the avoided cost inputs developed by the Vermont Department of Public Service (DPS) from recent substation upgrades performed by WEC. The 1667 kVa transformers are equipped with Cooper's Envirotemp® FR3 fluid. Envirotemp FR3 is a soy-based, fire resistant, non-silicone fluid that meets or exceeds both the National Electric Code and National Electric Safety Code standards for less flammable formulation as well as the UL listing requirements for use in electric transformers. WEC has chosen to utilize the Envirotemp FR3 fluid because it is the only dielectric fluid to meet the strict quality control for optimum transformer cooling characteristics and offers additional advantages, such as the highest flash/firepoint, best environmental profile, extended transformer insulation life, increased performance, and lower cost. ***See* WEC Exhibit 4 (DW-4)**, Cooper specifications. The proposed project will also be designed to allow WEC the ability to remotely monitor the electrical status of the single phase and three-phase circuits. With some modification at a later date, the Cooperative will be able to remotely control and operate critical equipment inside the substation associated with the proper deliverance of electrical power.

In addition, the replacement of the existing analog-based circuit protection equipment with state of the art programmable equipment will enhance system reliability through better downstream coordination of the protective devices. The proposed circuit

reclosers located in the substation will also provide fault distance locating, which will reduce the time necessary to patrol the line when a fault occurs.

For the reasons set forth above, the entire project is consistent with the 2005 Vermont Electric Plan as it will improve transmission and distribution efficiency through enhanced system configurations and the installation of energy efficient transformers, reclosers and voltage regulators.

Q7. Will the project be served economically by existing or planned transmission facilities without an undue adverse effect on Vermont utilities or customers?

A7. Yes. The proposed project will utilize WEC's existing 34.5 kV transmission line that currently serves the East Montpelier Substation. This line will need to be relocated from its present location over the top of the substation structure to an adjacent location approximately 37 feet northeast of the existing substation fence. This line relocation will require the installation of four new wooden poles to the south and east of the existing substation. The new line will be located partly within the existing 34.5 kV transmission corridor and partly onto adjacent property owned by WEC. No trees will need to be cut as part of this line relocation. All work to upgrade the transmission line will take place on property owned by WEC, and the basic capabilities and capacity of the facility will not change. The upgrade/relocation will greatly enhance the line's reliability and protection scheme to the East Montpelier and Maple Corner Substations. It will not adversely impact GMP's 33kv transmission line. **See WEC Exhibit 16 (DW-16)**, copy of e-mail from Green Mountain Power's Senior Engineer. Therefore, the project will be

served more economically and reliably by the relocated transmission facilities without any undue, adverse effect on Vermont utilities or customers.

Q8. What is the cost of the substation project?

A8. Based on construction work plan estimates, which have been revised to reflect the rising cost of steel and other equipment, as well as WEC's experience with actual costs incurred with the recent construction of the new Maple Corner Substation, the anticipated cost to replace the East Montpelier Substation is $904,400, broken down as follows:

Control Building in Substation	$10,000
34.5 kV Structure, Switches, Fuses	$108,885
Replace the CXE 34.5 kV circuit breaker	$18,000
Relocate the 34.5 kV transmission line (WEC and GMP Materials and Labor Included	$80,000
(3) 1667 kVa Transformers (34.5-12.5/7.2 kV)	$189,585
(9) Voltage Regulators	$73,000
Misc. Grounding, PVC, J. Boxes, Etc.	$10,000
Site Work	$94,800
Fence	$30,000
Engineering & Contingencies	$75,000
Permitting	$30,000
Labor	$185,000
Total Estimated Cost	$904,400

Costs for the steel structure, small hardware, power transformers and regulation devices were obtained through a formal bid process. The site preparation contract will also be awarded through a formal bid process. Construction of the new substation will be done by WEC personnel, in consultation with our engineers, Stantec Consulting.

Q9. How will the project be financed?

The project will be funded by a combination of Construction Work Plan financing and stimulus monies from the American Recovery and Reinvestment Act (ARRA).

On September 18, 2008, the Vermont Public Service Board granted approval for the Cooperative to borrow the construction costs associated with this project from the Rural Utilities Service as part of the regular financing of the current 2008-2011 Construction Work Plan. The Cooperative also recently became a sub-recipient of funding from the American Recovery and Reinvestment Act, through a grant awarded to Vermont Transco LLC (VELCO) for the development of various smart grid projects in the state. WEC's prorated share of the award is contingent upon a 50% match in funding from the Cooperative.

It is the Cooperative's intention to apply for 50% reimbursement of actual project costs from the ARRA allocation, and the balance from Construction Work Plan financing. The amount WEC expects to borrow from the Rural Utilities Service for one-half the project costs will be approximately $452,000, which is considerably less than the

$830,000 budget that was included in the original 2008-2011 Construction Work Plan loan application for this project.

Q9. What impact will this project have on rates?

A9. That portion of the project that will be financed as part of the 2008-2011 Construction Work Plan loan from the Rural Utilities Service, U. S. Department of Agriculture will be for a term of 35 years at an interest rate of approximately five percent (5%) annually. There are no finance charges associated with the grant reimbursement from ARRA. The annual cost to ratepayers under this scenario will be approximately $27,400 per year, which will have a nominal impact on rates.

Q10. Will the project result in an economic benefit to the State of Vermont and its residents?

A10. Yes, the new substation will have a positive economic benefit upon the State of Vermont and its residents. It will help reduce the number and duration of outages to members served by the East Montpelier Substation.

The East Montpelier Substation serves approximately 1,624 Co-op members, which are mostly comprised of residential consumers and some small commercial loads in the towns of Cabot, Calais, East Montpelier, Barre Town, Orange, Plainfield and Woodbury. The new substation will continue to provide redundant backup to distribution feeders currently served by WEC's Maple Corner, Moretown and Jackson Corner Substations, thereby, enhancing service reliability for WEC's members. The new

substation will be converted from a bus regulated configuration to a circuit regulated configuration, further enhancing the power quality and reliability to provide redundant service to loads served by other substations. In addition, the substation will continue to have sufficient capacity to accommodate growth in the region.

Q11. Please describe 30 V.S.A. §248(b)(1) and whether the project interferes with the orderly development of the region.

A.11. Under this criterion, an applicant must demonstrate that the project will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality.

The East Montpelier Substation reconstruction proposal, including a detailed description of the project, site and construction plans, and reference to the "Guide to the Vermont Public Service Board's Section 248 Process", was submitted to the Central Vermont Regional Planning Commission, which serves as the regional planning commission for Calais, in April, 2010. The Central Vermont Regional Planning Commission ("CVRPC"), by letter dated May 24, 2010, waived the 45 day notice requirement pursuant to 30 V.S.A. Section 248(f). **WEC Exhibit 7 (DW-7),** letter from CVRPC. The proposal, including a detailed description of the project, site and construction plans, and reference to the "Guide to the Vermont Public Service Board's Section 248 Process," was also presented to the Town of East Montpelier Planning

Commission in April 2010, and by letter dated May 21, 2010, it too waived the 45-day notice requirement. **Exhibit WEC 8 (DW-8),** letter from East Montpelier Planning Commission. WEC has received no objections from these municipal and regional bodies. In light of the fact that both entities waived their 45 day notice requirements, WEC anticipates their respective cooperation and support throughout the Section 248 process.

There will be no significant regional impacts because the reconstruction involves the replacement of the existing wooden structures with compact steel structures on the existing substation parcel of land. The reconstruction will not affect primary agricultural soils or adversely impact wetlands or other sensitive or ecologically fragile areas as set forth in further testimony. The project is also within WEC's existing distribution and transmission corridors and situated on WEC-owned property, and it will utilize the existing access drive from Quaker Hill Road that is a town maintained road, with little or no modification. Therefore, for all the reasons stated above, this project with not unduly interfere with the orderly development of the region.

Q12. Is the substation reconstruction needed to meet present and future demand?

A12. Yes, the proposed substation is required to meet present and future demand for service which could not otherwise be provided in a more cost effective manner through energy conservation programs and measures and energy efficiency and management measures. As set forth in answer to question # 4 above, this project is needed to replace

an existing substation that has deteriorated and reached the end of its useful life. The new substation will be constructed on the site of the existing substation, replacing the existing wooden structure with a galvanized steel structure. Construction will also utilize energy efficient and environmentally friendly 1667 kVa transformers manufactured by Cooper Power Systems, which are of sufficient capacity to accommodate future growth

Q13. Pursuant to 30 V.S.A. § 248(b)(5), will expansion of the East Montpelier Substation as proposed have an undue adverse impact on aesthetics, historic sites, air and water purity, natural environment, and public health and safety?

A.13 Construction of the proposed project should not be considered "unduly adverse." The proposed project will not create undue, adverse impacts on the aesthetics, historic sites, air and water purity, natural environment, and public health and safety within the criteria specified in 10 V.S.A. §§ 6068(a)(1) through (8) and (9)(k) along with 10 V.S.A. § 1424(a)(d)). I will address each in turn below.

Q.14 Please describe 30 V.S.A. sec. 248(b)(5) and 10 V.S.A. sec. 6081(a)(1) with respect to water and air pollution, and your analysis and conclusions relative to these criteria?

A.14. Under these two criteria, an applicant must demonstrate that the project as proposed will not have an undue, adverse effect on air and water purity, nor create any undue adverse air and water pollution. For the following reasons, this project will not

have any undue, adverse impact upon air or water quality or result in undue water and air pollution.

The project does not involve industrial/manufacturing emissions, vehicle exhaust at congested intersections, excessive dust and smoke during construction, or processing or storage of radioactive materials. Earth disturbance from the construction on the pre-existing substation site and parking is approximately 0.13 acres of land, and given its limited size and scope. No herbicides will be used to clear the site. No burning is required for this project. Therefore, the project will not result in unreasonable air pollution or adversely affect air quality because there will be no emissions from the project.

There will be no undue, adverse water pollution. The substation project will not increase the total area of pre-existing, impervious surface area. The foot print of the substation equipment will remain approximately the same, and the fenced in area will be expanded to include the pre-existing parking lot area. The new substation footprint will have a crushed stone surface that will allow initial rainfall to permeate the surface and slow down runoff from extended storms. Basic drainage patterns will generally remain the same. However, storm water that falls in or around the substation equipment will be channeled into perforated pipe and into the oil/water separator tank and dispersed in the drainage swale equipped with a stone dam. ***See*** **WEC Exhibits 1(C2)-1(C4).** The flow patterns through grassy swales and other vegetation surrounding the site provide natural treatment of storm runoff. In addition, since the construction will involve less than an acre of disturbance, no permit is required by the Water Quality Division of the Agency of

Natural Resources for storm water discharge. There should be no runoff during construction that impacts water purity because of implementation of an erosion control and sediment plan. Any soil erosion from the construction site will be caught by silt fencing. *Id.*

The site should not add any significant amount of impurities such as road salt, motor oil, and gasoline to storm water runoff. The new transformers purchased from Cooper Power Systems will be equipped with soy-based, environmentally friendly Envirotemp FR3 fluid. However, as required by the Rural Utilities Service, the substation will also contain an oil containment system. In the unlikely event of a leak from the transformers or voltage regulators, oil will be collected and piped to an underground oil/water separator tank. The oil containment vessel will be checked at the time of regularly scheduled monthly substation inspections and pumped as needed. Any transformer or regulator liquids or oil will be disposed off site. ***See* WEC Exhibits 1(C2) & (1)(C3).**

In conclusion, for the reasons set forth above, there should be no undue, adverse effect on air or water purity and pollution as a result of expanding this substation as proposed. ***See* WEC Exhibit 11 (DW-11)**, letter from Agency of Natural Resources dated May 27, 2010.

Q15. Please describe 30 V.S.A. §248(b)(5) with reference to the criteria specified in 10 V.S.A. §1424a(d) – outstanding resource waters, which is also set forth in 30 V.S.A. §248(b)(8) – and your analysis and conclusions relative to these criteria.

A.15. Under these criteria, an applicant must demonstrate that a proposed project will have no undue adverse effect on any Outstanding Resource Waters (ORW) of the State of Vermont.

ORWs are designated by the Vermont Water Resources Board in accordance with 10 V.S.A. §1424a. These waters are protected in accordance with Section 1-03D of the Vermont Water Quality Standards. There are no outstanding resource waters within close proximity to this project, and therefore the proposal will have no adverse impact under this criterion. ***See* WEC Exhibit WEC-17 (DW-17)**, copy of a list of designated Outstanding Resource Waters as published on the Agency of Natural Resources website as of April 2, 2010.

Q16. Please describe 10 V.S.A. §6086 (a)(1)(A) – headwaters – and your conclusion.

A.16. Under this criterion, an applicant must demonstrate that a proposed project will meet applicable regulations regarding water quality in an area defined as a headwaters region. Headwaters are waters flowing to a river or stream, and, as defined in the statute, are characterized by steep slopes and shallow soils; or, are lands which have drainage areas of 20 square miles or less; or, are lands above 1500 feet elevation; or, are

watersheds of public water supplies designated by the Vermont department of health; or, are areas supplying significant amounts of recharge waters to aquifers. See 10 V.S.A. §6086 (a)(1)(A). If any of these five definitions apply to the project lands, the area is defined as a headwaters region.

I do not believe that the proposed project is located in a headwaters region, and will therefore not impact headwaters or the watershed. See WEC Exhibit 11 (DW-11), copy letter from Agency of Natural Resources dated May 27, 2010. However, in the unlikely event this project falls within a headwaters region, it will not unduly impact any water resource due to the e minimal earth disturbance, and WEC will ensure that erosion control measures are utilized during the period of construction.

Q17. Please describe 10 V.S.A. §6086(a)(1)(B) – waste disposal – and your conclusion.

A.17. Under this criterion, the applicant must demonstrate that the proposal will meet all applicable rules and regulations for waste disposal and Department of Environmental Control ("DEC") regulations for waste discharge, and will not involve the injection of waste or any harmful or toxic substances into groundwater or wells.

WEC does not propose to inject or dispose of waste or any harmful or toxic substances as part of the proposed expansion of this substation, and will therefore have no impact under this criterion. Any construction debris will be disposed of at a state-approved landfill or recycled where possible. As mentioned above, the substation will include an oil containment system which will collect any leaking transformer oils which

will then be piped to an impervious, concrete, underground oil/water separator tank. Any oils that are collected and temporarily stored here will be removed on a regular basis and disposed of off site.

Q18. Please describe 10 V.S.A. §6086(a)(1)(C) – water conservation – and your conclusion.

A.18. Under this criterion, an applicant must demonstrate that the project design has considered water conservation, incorporates multiple use or recycling where technically and economically available, and uses best available technology for such applications.

This project will not require a water supply, and will therefore have no impact under the concerns of this criterion.

Q19. Please describe 10 V.S.A. §6086(a)(1)(D) – floodways – and your conclusion.

A.19. Under this criterion, an applicant must demonstrate that no portion of the proposal is located within a 100-year flood boundary or floodplain, or, if in a floodway, must demonstrate that the project will not restrict or divert the flow of flood waters, or endanger the health, safety and welfare of the public during flooding. In addition, an applicant must demonstrate that the development within a floodway fringe would not significantly increase peak discharge rates.

The proposed project is not located within a 100-year flood boundary or flood plain. **WEC Exhibit 10 (DW-10),** Copy of Flood Plain Map, Town of East Montpelier.

The location of WEC's substation is depicted at the top left-hand side of the map, which is designated Zone C, an area not considered to be within a flood zone.

Q20. Please describe 10 V.S.A. (a)(1)(E) – streams – and your conclusion.

A.20. Under this criterion, an applicant must demonstrate that a proposed project will maintain the natural condition of streams whenever feasible and will not endanger the health, safety or welfare of the public or adjoining landowners.

There are no known streams in the vicinity of the existing substation, and therefore, the project will have no impact on streams. Nevertheless, WEC will prevent sediment runoff during construction with its erosion and sediment control plan that uses, in part, strategically placing a silt fencing around the perimeter of the proposed construction area. See WEC Exhibits 1(C2) and 1(C4). In addition, drainage swales in conjunction with stone check dams surrounding the substation will collect and slow any runoff and insure that the preexisting drainage patterns remain the same, i.e. grassy swales and other vegetation will provide natural treatment of storm water runoff. Accordingly, there will not be undue, adverse impact upon any streams.

Q21. Please describe 10 V.S.A. §6086(a)(1)(F) – shorelines – and your conclusion.

A.21. Under this criterion, an applicant must demonstrate that a proposed project which is located on a shoreline must be located on a shoreline in order to fulfill the project purpose. There are no shorelines within the project vicinity, and therefore the project will have no impact on shorelines.

Q22. Please describe 10 V.S.A. §6086(a)(1)(G) – wetlands – and your conclusion.

A.22. Under this criterion, an applicant must demonstrate that the project will not violate the rules of the Water Resources Board relating to "significant wetlands."

The Vermont Agency of Natural Resources has determined that since the proposed project will remain within the current footprint of the substation and parking area, the project will not have any adverse impact on wetlands. **See WEC Exhibit 11, (DW-11), letter from Vermont Agency of Natural Resources dated May 27, 2010).**

Q23. Please describe 10 V.S.A. §6086(a)(2)&(3) – sufficiency of water and burden on existing water supply – and your conclusion.

A.23. Under this criterion, an applicant must demonstrate that the project will have sufficient water available for reasonably foreseeable uses of the project, and will not cause an unreasonable burden on existing water supplies.

The proposal will not require a supply of water and will therefore have no impact under this criterion.

Q24. Please describe 10 V.S.A. §6086(a)(4) – soil erosion – and your conclusion.

A.24. Under this criterion, an applicant must demonstrate that the proposed project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result.

Soil disturbance will be minimal on this project because it is being built on the existing substation site and parking lot. Construction contemplates the placement of an

additional 6 to 12 inches of crushed gravel and 3 to 4 inches of crushed stone in the area of proposed expansion. WEC will implement an erosion control and sediment plan, including the use of silt fencing, during construction. ***See*** **WEC Exhibits 1(C2)-1(C4).**

In addition, other than the small control room proposed for the expansion, no new impervious surfaces will be created such that will increase peak runoff from the site. The crushed stone or gravel fill placed in the expanded area of the substation will help detain runoff from extended storm events. Drainage swales in conjunction with stone check dams surrounding the substation will collect any runoff and insure that the preexisting drainage patterns remain the same, i.e. across grassy swales and other vegetation to provide natural treatment of storm water runoff. *Id.*

Because of the soil control measures that will be employed during construction, the Vermont Agency of Natural Resources has determined that soil erosion is not a concern. **WEC Exhibit 11 (DW-11)**, correspondence from the Agency of Natural Resources dated May 27, 2010.

Q25. Please describe 10 V.S.A. §6086(a)(5) – transportation system – and your conclusion.

A.25. Under this criterion, an applicant must demonstrate that the proposed project will not cause unreasonable congestion or unsafe conditions with respect to use of transportation systems (highways, waterways, railroads, airports and airways.)

This is a relatively simple expansion project which will require some additional truck traffic during the construction phase, which will result in minimal and temporary

increase in traffic. However, once established, the rebuilt substation should have no impact on any of the transportation systems identified in this criterion. Therefore, I conclude that this project will have no significant impact under this criterion.

Q26. Please describe 10 V.S.A. §6086(a)(6) – educational services – and your conclusion.

A.26. Under this criterion, an applicant must demonstrate that the proposed project will not cause an undue adverse impact on educational services.

Expansion of the East Montpelier substation as described herein will have nothing but positive impacts on the local school system by improving the electrical reliability of the area. As such, there will be no adverse impact on the educational services of the area.

Q27. Please describe 10 V.S.A. §6086(a)(7) – municipal services – and your conclusion.

A.27. Under this criterion, an applicant must demonstrate that the proposed project will not cause an unreasonable burden on the ability of the involved municipalities to provide municipal or governmental services.

The Project will not require any municipal or governmental services. I therefore conclude that the project will not cause an unreasonable burden on the town of East Montpelier, or the immediate region. We have shared this proposal with the Town as well as the Central Vermont Regional Planning Commission, and expect continued

support for the project. ***See*** **WEC Exhibits -8 (DW-8), and Exhibit WEC-7(DW-7) respectively.**

Q28. Please describe 10 V.S.A. §6086(a)(8) – aesthetics, historic sites or rare and irreplaceable natural areas – and your conclusions.

A.28. Under this criterion, an applicant must demonstrate that the proposed project will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas.

WEC relies on the Environmental Board's "Quechee Lakes" decision in which it designed a methodology for the determination of undue adverse affects on aesthetics and scenic and natural beauty. Quechee Lakes Corp., #3W0411-EB and 3W0439-EB, dated January 13, 1986.

As set forth in this decision, one must determine if the impact of the project will be adverse. The project will have an adverse impact on the aesthetics of the area if its design is out of context or not in harmony with the area in which it is located. If it is found that the impact would not be adverse, it is unnecessary to determine that such an impact would be "undue." If on the other hand the project is found to be adverse, a further analysis as to whether it is "undue" is required. Such a finding could be made if the project satisfied any of the following three criteria: (1) violates a clear written community standard intended to preserve the aesthetics or scenic beauty of the area; (2) it would offend the sensibilities of the average person; or (3) if generally available

mitigating steps will not be taken to improve the harmony of the project with its surroundings.

This project will not be adverse to the area because the pre-existing substation is being replaced with a structure that is lower in profile and not substantially larger. ***See*** **WEC Exhibits 6(a)-6(c) (DW-6(a)-6(c))**, photographs of the existing East Montpelier substation and existing Maple Corner substation that is substantially similar to the proposed substation for this project. The substation is visually partially shielded from the north and east with evergreen trees. *Id.* WEC intends to plant additional ever greens on the southwest corner. **See WEC Exhibits 1(C2) & (C4).** Furthermore, the existing substation is located 275 feet from Quaker Hill Road, which is the only public road that features a view of the substation, . **WEC Exhibit 6(b)(DW-6(b)**, photographs of existing substation from Quaker Hill Road).,

The overall visibility of the substation will be insignificant to the general public because it will only be visible to a relatively small number of public travelers and very few residences along this road, and there are no outstanding scenic vistas in the vicinity of the Project, ***See*** **WEC Exhibits- 6(a), 6(b), and**, photos of existing substation from closest residential neighbors to the substation. Accordingly, the project therefore will not create either an "adverse" nor an "undue adverse" impact on the scenic vistas or aesthetics of the area.

Based upon previous experience with galvanized steel structures, within less than a year, becomes weatherized and dull. WEC anticipates the same to occur here. In addition, there will be four security lights that will only be activated by motion detection.

To further analyze the "undue" factor within the *Quechee* analysis for this particular location, I answered the following three questions: First, will the project violate any clearly written community standard? Second, will the average person find the project shocking or offensive? And third, will WEC take reasonable steps to lessen any adverse effects? There are no clearly written community standards that prohibit the expansion of this substation as proposed. Second, this relatively small Project will not shock the average person, especially given the fact that the existing substation has been in place here for the past 35 years. Notwithstanding the fact that the new proposal will replace wooden structures within the substation with galvanized steel, the state-of-the-art utility structures located throughout Vermont are galvanized steel, and are becoming more and more common place. Third, WEC has taken reasonable steps to minimize visually adverse impacts that may otherwise be created by the proposal by limiting the height of the secondary structure to just three feet beyond the preexisting structure, and reducing the high-side structure to 4'2" lower than the existing wood structure. ***See* WEC Exhibits 1(C2)(site plan) & WEC1(E4)(substation plan)**. Accordingly, I conclude that the project will not create an undue adverse aesthetic impact under this criterion.

In terms of historic sites or rare and irreplaceable natural areas under this criterion, there are no such areas in the general vicinity of this project. ***See* WEC Exhibit -12 (DW-12)**, letter from Giovanna Peebles, State Historic Preservation officer dated June 9, 2010.

Q29. Please describe 10 V.S.A. §6086(a)(8)(A) – necessary wildlife habitat, endangered species – and your conclusions.

A.29. Under this criterion, an applicant must demonstrate that the proposed project will not destroy or significantly imperil rare and irreplaceable natural areas, necessary wildlife habitat, or endangered species.

There are no known rare and irreplaceable natural areas in the proximity of the Project. There are also no known wildlife habitats or endangered species in the immediate vicinity of the Project or that will be impacted adversely by this Project. **See WEC Exhibit 13 (DW-13)**, letter from Amy Alfieri, Department of Fish and Wildlife, dated April 12, 2010). I would therefore conclude that the project will not have a negative impact on irreplaceable natural areas, necessary wildlife habitat, or endangered species.

Q30. Please describe 10 V.S.A. §6086(a)(9)(K) – development affecting public investments – and your conclusion.

A.30. Under this criterion, an applicant must demonstrate that if the project is on or adjacent to governmental or public facilities, services or lands, it will not unreasonably endanger the public or quasi-public investment in the facility, service or lands or materially impair public use or enjoyment thereof.

This Project will not implicate or affect any public or quasi public investment because there are no nearby public facilities as defined by this criterion other than the

WEC facilities and Quaker Hill Road. Neither will be impacted adversely by this project, but rather the project is designed to enhance WEC's facilities.

Q.31 Have adjacent property owners been notified of your proposal to reconstruct the East Montpelier Substation?

A.31. Yes. Utilizing the grand list as it existed on April 20, 2010, I informed the six (6) adjacent property owners of WEC's proposed project by letter dated June 10, 2010. ***See*** **Exhibit WEC Exhibit 14 (DW-14)**, letters to Oran Jilandarn, Jon Jewett, Frank Campbell, Ford Marden, Linda Royce, and Pastor Mark McEathron.

Q32. Please summarize your conclusions?

A.32. This is a relatively small, self contained project located primarily within an existing substation in a very rural setting. This project will impose a very, very small impact to the environment, an impact so small that virtually none of the criteria I have been asked to address will be impacted adversely, much less unduly. This project has been discussed with local and regional officials who have considered potential impacts, and who have yet to voice any concerns.

Q33. Does this conclude your testimony at this time?

A33. Yes, it does.

WASHINGTON ELECTRIC COOPERATIVE, INC.

Dan Weston

Dan Weston, Director of Engineering & Operations

At East Montpelier, Vermont, this 2nd day of July, 2010, personally appeared Dan Weston, who acknowledged that the facts and matters contained herein are true to the best of his knowledge, information and belief, and that he executed the foregoing document as his free act and deed.

Before me,

Deborah Brown

Notary Public

My Commission Expires 2/10/11